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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/781,130 | 02/17/2004 | Mustafa Naser Al-Ali | 205,997 | 3382 |

7590 11/26/2004

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EXAMINER

HUGHES, SCOTT A

ART UNIT PAPER NUMBER

3663

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/781,130 | Applicant(s) AL-ALI, MUSTAFA NASER | |
| | Examiner Scott A Hughes | Art Unit 3663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,9,13 and 21 is/are rejected.
- 7) ☒ Claim(s) 2-8, 10-12, 14-20, 22-24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/20/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

The preliminary amendment to the specification is objected to because it claims priority by calling the present invention a "continuation-in-part" of a US Provisional application. The amendment changes the specification to claim priority from a provisional application by inserting the line, "This is a continuation-in-part to U.S. Serial No. 60/464315 filed April 23, 2003, the disclosure of which is herein incorporated by reference." Refer to MPEP Chapter 201.11, Section III, Subsection B, the second paragraph of which states:

The relationship (i.e., continuation, divisional, or continuation-in-part) is not required and should not be specified when a prior provisional application is being claimed under 35 U.S.C. 119(e). No relationship should be specified because whenever a priority claim to a provisional application under 35 U.S.C. 119(e) is made, it is implicit that the relationship is "nonprovisional application of a provisional application." If a relationship between a prior provisional application and the nonprovisional application is submitted, it may be unclear whether the applicant wishes to claim the benefit of the filing date of the provisional application under 35 U.S.C. 119(e) or 120. Thus, applicants seeking to claim the priority to a provisional application under 35 U.S.C. 119(e) should not state that the application is a "continuation" of a provisional application or that the application claims 35 U.S.C. 120 benefit to a provisional application. Although 35 U.S.C. 120 does not preclude a benefit claim to a provisional application, it is not recommended that applicants claim the benefit to a provisional application under 35 U.S.C. 120 since such a claim could have the effect of reducing the patent term, as the term of a patent issuing from such an application may be measured from the filing date of the provisional application pursuant to 35 U.S.C. 154(a)(2).

The disclosure is objected to because of the following informalities:

In the "**Brief Description of the Drawings**," Fig. 4 is said to illustrate an idealized relationship of V_p/V_s to Poisson's ration and Fig. 5 is said to be a crossplot of

calculated Vp. The drawing of Fig. 4 appears to be the crossplot of calculated Vp and Fig. 5 appears to be the relationship of Vp/Vs to Poisson's ratio. The specification should be fixed so that the description of these two figures in the "**Brief Description of the Drawings**," is switched in order to match what is shown in the drawings.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as anticipated by Widess.

With regard to claim 1, Widess discloses a method for estimating P-wave velocity in a near-surface region 17 (Fig. 1) of a land area, comprising a first step of gathering control data for the near-surface region (Column 9 to Column 11, Line 10). Widess discloses control data in the form of static corrections applied to short traces. He discloses that this control data is used to determine static corrections that are applied to dynamic data in order to estimate velocity (Column 11, Line 65 to Column 12, Line 15). Widess discloses a second step of gathering vibrator dynamic data generated in the near-surface region 17 in response to vibrator 1,16 (Fig. 1) action on the land area (what he refers to as INVEL). Widess discloses a third step in that the velocity is determined from the corrections from the control data along with the dynamic data taken

from the different source and receiver positions (Column 9, Lines 47-54 and Column 12, Line 55 to Column 13, Line 5).

With regard to claim 9, Widess discloses performing the first and second steps of claim 1 are performed in any order or concurrently (Columns 5 and 6). Widess discloses a method of taking data with the source at different positions, and the data is used either as the control data to make the corrections or as the dynamic data that is used in the INVEL method along with the control data to estimate the velocity.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widess in view of Shei.

With regard to claim 13, Widess does not disclose control data based upon waves in the near-surface region generated in response to a shock in each of a plurality of upholes drilled in the land area. Shei discloses a method of taking data from shocks generated in upholes drilled in near-surface area (Column 9, Lines 54-68). Shei discloses the same type of Vibroseis surface source for taking data on the weathering layer as Widess. Although Shei discloses that the method of shocks in the upholes would be an alternative to the vibrator surface source disclosed in his invention, it is an

example of another method of obtaining seismic wave data in the near-surface layer. Therefore, it would have been obvious to modify Widess to include gathering the control data from uphole shocks as disclosed by Shei if such a system of upholes were already present in the area of observation or if data of waves or receivers inside of the weathering layer instead of on its surface were desired.

With regard to claim 21, Widess discloses performing the first and second steps of claim 1 are performed in any order or concurrently (Columns 5 and 6). Widess discloses a method of taking data with the source at different positions, and the data is used either as the control data to make the corrections or as the dynamic data that is used in the INVEL method along with the control data to estimate the velocity.

Allowable Subject Matter

Claims 2-8, 10-12, 14-20, and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 2-3, 14-15 and their dependent claims disclose vibrator dynamic data that includes ground stiffness data and ground viscosity data. The prior art did not show these two types of dynamic data in use with the determination of P-wave velocity in the near-surface layer.

Claims 10 and 22 disclose integrating uphole velocity using collocated cokriging with velocity attribute information. The prior art did not disclose the use of collated cokriging with uphole velocity information and vibrator dynamic information in the estimation of P-wave velocity.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zhang, et al who disclose determining P-wave velocities.

Barr, who discloses static corrections and velocity determination in the near-surface layer.

Osyrov, who discloses making a near-surface model of velocities.

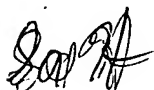
Curtis, et al who disclose a system for estimating seismic material properties.

Al-Ali (the present inventor), who discloses in a thesis the aspects of the current invention for determining P-wave velocity in the near surface layer, and the date of which is less than one year prior to the claimed priority date.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A Hughes whose telephone number is 703-305-0430. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 703-306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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